

**YBCO/Metal Oxide/YBCO Edge-Geometry Josephson Devices with Epitaxial Insulator Overlayers for High-Temperature Superconductive Electronics.\*** J.B. BARNER, B.D. HUNT, M.C. FOOTE, and R.P. VASQUEZ, Jet Propulsion Laboratory, Pasadena, CA USA--We have been fabricating epitaxial edge-geometry Superconductor-Normal-Superconductor (SNS) Josephson devices using superconducting  $\text{YBa}_2\text{Cu}_3\text{O}_{7-x}$  (YBCO) and various normal metal oxides, deposited by pulsed-laser deposition. We begin our junction fabrication by depositing a bilayer of YBCO/ $\text{Sr}_2\text{AlTaO}_6$  (SAT). Our edges are defined by an angled ion mill (-600 from normal) to produce a tapered YBCO/SAT edge using patterned metal milling masks. The milling times and film thicknesses are chosen to erode the metal milling mask prior to exposing the YBCO film. The growth of the N-layer and the YBCO counter electrode are done after the mill, in situ. Initial results with Nb milling masks and  $\text{PrBa}_2\text{Cu}_3\text{O}_{7-x}$  are promising with, devices displaying current-voltage characteristics consistent with the resistively-shunted junction model. Additional results using various metal oxides, such as Pr and Co-doped YBCO, other milling mask materials and cross-over test circuits will be presented.

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 Registrant: Jeffrey B. Barner  
 Correspondence Author:: Jeffrey B. Barrier  
 Jet Propulsion Laboratory  
 M/S 302-231  
 California Institute of Technology  
 4800 Oak Grove Drive  
 Pasadena, CA 91109  
 Tel: (81 8) 354-7353  
 Fax: (81 8) 393-4540  
 E-mail: JBarner@VAXEB.JPL.NASA.GOV  
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